

Asarco Mission Complex
FACT SHEET
FINAL March 5, 2003
EPA PERMIT NO. AZ0024597

This document gives pertinent information concerning the issuance of the NPDES permit listed below. The effluent limitations contained in this permit will maintain the Water Quality Standards listed in Arizona Administrative Code (AAC.) R18-11-101 et. seq. This permit, for a Major facility as specified in 40 CFR 122.2, is proposed to be issued for a period of 5 years.

Permittee's Name: ASARCO Inc. - Mission Complex

Mailing Address: P.O. Box 111
Sahuarita, AZ 85629

Plant Location: 4201 West Pima Mine Road
Sahuarita, AZ 85629

Contact Person: John D. Low
General Manager

NPDES Permit No. AZ0024597

ADEQ Inventory No. 100508

I. STATUS OF PERMIT(s)

The ASARCO Mission Complex filed its Notice of Intent (NOI) for coverage under the Multi-Sector Stormwater General Permit (AZRO5A72F) dated January 25, 2001. Discharges of stormwater from the facility are currently covered under a multi-sector general stormwater permit ID Number AZRO5A72F. Previous NOIs were dated January 26, 1999 (ID number AZRO5A51F) and February 3, 1993 (ID number AZR00A14F).

As the result of an inspection report (dated May 3, 2002 prepared by John Hillenbrand, U.S. EPA), Asarco was issued a Finding of Violation and Order for Compliance on June 20, 2002. Due to potential for exceeding water quality standards and due to non-compliance with components of the MSGP, EPA determined that Asarco Mission Complex was no longer eligible for coverage under the MSGP. As part of the order, EPA required that the Asarco Mission Complex apply for an individual NPDES permit by August 5, 2002.

The Mission Complex submitted a NPDES permit application to EPA on August 2, 2002.

The U.S. Environmental Protection Agency (EPA) and the Arizona Department of Environmental Quality (ADEQ) have prepared draft National Pollutant Discharge Elimination System (NPDES) permits for the discharge of mine drainage and stormwater from the Asarco Mission Complex located in Pima County, Arizona. The State of Arizona obtained primacy for the NPDES

program on December 5, 2002. The ASARCO Mission Complex is located on both private and tribal lands, and therefore the Mission Complex is subject to the jurisdiction of both the U.S. Environmental Protection Agency (EPA) and the Arizona Department of Environmental Quality (ADEQ). Therefore, EPA is issuing a NPDES permit for the discharges located on Tribal Lands, and ADEQ is issuing a AZPDES permit for discharges not located on Tribal Lands. Permit conditions in the two permits are largely identical, with the exception of the discharge points authorized by each permit; the inclusion in the AZPDES permit of several conditions related to activities occurring solely on non-Tribal land; the requirements to comply with the federal Endangered Species Act contained in the EPA NPDES permit, and the requirements contained in the ADEQ permit regarding EPA review of the permit.

II. GENERAL FACILITY INFORMATION

The Mission Complex is a commercial open pit copper mine and underground copper mine. The facility is located near Sahuarita, Arizona (18 miles south of Tucson). The mine site is spread out over an area of approximately 23 square miles and includes an open pit (measuring approximately 2.5 miles long by 1.5 miles across), associated crushing, grinding and flotation facilities, tailings facilities, waste rock dumps, and warehouse, maintenance and administrative areas. The underground mine is accessed through declines from within the pit. The area of the Mission Complex north of Pima Mine Road is located on Tribal land of the San Xavier district of the Tohono O’Odham Nation while the area south of the Pima Mine Road is primarily owned by ASARCO.

Copper mining has been conducted on the site beginning with prospectors in the 1900s. Mining continued with vertical and decline shafts in the 1920s, 1930s and 1940s. During WWII, the mine area also produced tungsten due to the high demand and price for tungsten. Open pit stripping began in 1959.

The facility has a production capacity of 400,000 tons per year of copper concentrate. The mill has processed up to 60,000 tons of ore per day although the facility is currently mining 9,200 tons of ore per day. Future production rates are likely to depend on copper prices. Ore is crushed via the primary gyrotory crusher, rod mill and ball mill. The ground ore is pumped as a slurry to froth flotation cells, where chalcopyrite is separated from non-copper bearing minerals. Lime, xanthates (a biodegradable additive that serves as a collecting agent), pine oil (a frothing agent), and methyl isobutyl carbonyl are added to the mixture to facilitate separation of the copper mineral. In the flotation stage, the chalcopyrite attaches to the air bubbles and is skimmed off. The first stage, “roughing” removes approximately 88% of chalcopyrite. The skimmed materials from the roughing stages are re-ground and sent to secondary froth flotation cells (two stages). Tailings are collected from the roughing and secondary flotation cells and gravity-fed to the tailings ponds. None of the tailings facilities have been permanently reclaimed. For final processing, the copper concentrate (containing approximately 27% copper) is sent off-site for smelting.

From 1973 to 1978, a leaching plant was operated at the facility to acid leach copper from the oxide ore. However, the very high carbonate content of the orebody, and consequently the acid requirements for leaching made recovery from this orebody via leaching uneconomic, and leaching ceased. At the request of the Tribe, ASARCO currently selectively stockpiles oxidized

materials at the San Xavier Dump on Tribal lands. A typical copper porphyry deposit, such as that found at the Mission Complex can contain other minerals including silver, molybdenum, lead, zinc and manganese, and other elements such as traces of arsenic and tungsten.

III. RECEIVING WATER

The State of Arizona has adopted water quality standards to protect the designated uses of its surface waters. Streams have been divided into segments and designated uses assigned to these segments. The water quality standards vary by the designated use depending on the level of protection required to maintain that use.

Outfalls from the Mission Complex discharge to unnamed tributaries of the Santa Cruz River. All tributaries in the vicinity of the Mission Complex are ephemeral washes that only flow during a storm event. These tributaries eventually reach the Santa Cruz River in an ephemeral segment located between the Tubac bridge and the Roger Road WWTP. Pursuant to Arizona's water quality standards, unlisted ephemeral tributaries (such as those that would receive any discharge from the outfalls at the Mission Complex) are protected by the Aquatic and Wildlife ephemeral (A&We) and Partial Body Contact (PBC) designated uses. See A.A.C. R18-11-105.

Arizona's 1998 Water Quality Limited Waters List (ADEQ, EQR-98-8, July 1998) does not list as impaired the ephemeral washes near Mission or the portion of the Santa Cruz River into which these washes could flow. Thus, the receiving waters are considered "Tier 2" water bodies with respect to Arizona Water Quality Standards at Arizona Administrative Code (A.A.C.) R18-11-107.

The numeric effluent limitations in the EPA permit apply only to the discharges from the following NPDES discharge points:

Outfall No.	Description of discharge	Location of discharge
Outfall 001A	runoff from roadway next to San Xavier Oxide dump	Latitude: 32° 1' 30" N Longitude: 111° 4' 30" W
Outfall 002D	runoff from Tailings No. 2, 3, and North Dump	Latitude: 32° 1' 45" N Longitude: 111° 1' 0" W
Outfall 006L	runoff from San Xavier Dump	Latitude: 32° 2' 30" N Longitude: 111° 4' 30" W

The numeric effluent limitations in the ADEQ permit apply only to the discharges from the following AZPDES discharge points:

Outfall No.	Description of discharge	Location of discharge
Outfall 003G	runoff from Tailings No. 6 and 7	Latitude: 31° 58' 15" N Longitude: 111° 0' 0" W
Outfall 004I	runoff from Tailings No. 8	Latitude: 31° 57' 30" N Longitude: 110° 59' 45" W
Outfall 005K	runoff from South Pima Dump and Mineral Hill Dump; stormwater run-on from west of facility	Latitude: 31° 57' 30" N Longitude: 111° 3' 45" W

IV. DESCRIPTION OF DISCHARGE

Potential pollutants at the Mission Complex are found in the following: process solutions, tailings reclaim water, tailings, waste rock and stormwater contaminated by contact with tailings and acid-generating waste rock. Based on data provided for the aquifer protection permit, the majority of waste rock generated at the Mission Complex is not acid-generating.

ASARCO has provided data from stormwater sampling at the Mission Complex as part of the MSGP. Between seven and eleven sampling episodes were conducted at five different stormwater sampling locations. The sample points include:

Sample point A - Roadway and rock dumps

Sample point B - Alluvium dump

Sample point D - Tails slope and roadway

Sample point F - roadway

Sample point H - tails slope, rock dike and dump, alluvium

The sampling data indicate the levels of Arsenic, Cadmium, Copper, Iron, Lead, Magnesium, Manganese, and Zinc have been detected. Additionally, samples indicated that levels of TSS, COD, total nitrogen, cadmium, copper, iron and zinc exceeded benchmark values listed in Tables G1 and G2 of the MSGP.

The following table is a summary of sampling data:

Parameter	Maximum Concentration	Number of Samples
Oil and Grease	4.0 mg/l	9
BOD ₅	6.1 mg/l	9
COD	160 mg/l [exceeds MSGP]	18
TSS	11,874 mg/l [exceeds MSGP]	18
Total N	2.6 mg/l [exceeds MSGP]	9
Total P	ND	9
Antimony	ND	16
Arsenic	86 ug/l	16
Beryllium	ND	16
Cadmium	22 ug/l (total) [exceeds MSGP]	20
Copper	36,000 ug/l (total) [exceeds MSGP]	20
Iron	105,000 ug/l (total) [exceeds MSGP]	16
Lead	160 ug/l (total)	20
Magnesium	3,500 ug/l	16
Manganese	3,400 ug/l (dissolved)	16
Mercury	< 0.5 ug/l	20

Nickel	< 50 ug/l	16
Selenium	< 100 ug/l	16
Silver	< 5 ug/l	16
Zinc	1820 ug/l (total) [exceeds MSGP]	20

V. STATUS OF COMPLIANCE

The ASARCO Mission Complex filed its Notice of Intent (NOI) for coverage under the Multi-Sector Stormwater General Permit dated January 25, 2001. Discharges of stormwater from the facility are currently covered under a multi-sector general stormwater permit ID Number AZRO5A72F. Previous NOIs were dated January 26, 1999 (ID number AZRO5A51F) and February 3, 1993 (ID number AZR00A14F).

As the result of an inspection report (dated May 3, 2002 prepared by John Hillenbrand, U.S. EPA), ASARCO was issued a Finding of Violation and Order for Compliance on June 20, 2002. A summary of compliance problems identified at the Mission Complex include:

- The Stormwater Pollution Prevention Plan (SWPPP) was missing essential elements and was not adequate to address requirements of the MSGP.
- A tailings spill occurred on 5/11/01, consisting of 200 tons of tailings slurry on Pima7 slopes 1 and 2.
- Monitoring data of runoff has demonstrated a reasonable potential to exceed Arizona water quality standards. Exposed mineralized materials were noted to be present at various locations including road construction materials West of the Tailings No 6 and along the outer slopes of tailings piles and rock dumps.
- A lack of BMP's at certain location even though the site was permitted since 1993.

The Order for Compliance included:

- Due to compliance problems listed above, Asarco Mission Complex is no longer eligible for coverage under the MSGP and must apply for an individual NDPES permit
- ASARCO must take all actions necessary to ensure that discharges do not cause or contribute to violations of water quality standards.
- ASARCO must develop an adequate SWPPP that is based on the MSGP but includes more BMP's and monitoring for approval by EPA and ADEQ.
- ASARCO must perform a biological assessment of the Mission Complex to evaluate critical habitat and species protected under the Endangered Species Act.
- ASARCO must perform additional discharge monitoring.

- ASARCO must make permanently accessible for inspection all areas of the Mission Complex where stormwater inspections are required.

The activities to comply with the Order are ongoing at the Mission Complex.

VI. DETERMINATION OF EFFLUENT LIMITATIONS

When determining what parameters need monitoring and or limits included in the draft ASARCO Mission Complex permit, both technology-based and water quality-based criteria were compared and the more stringent criteria applied.

Technology-based Limitations:

The Mission Complex operates a copper concentrator that utilizes the froth flotation process. Process wastewater discharged from the froth flotation process and mine drainage is subject to the effluent limitations at 40 CFR Part 440 Ore Mining and Dressing Point Source Category. Subpart J, the Copper, Lead, Zinc, Gold, Silver, and Molybdenum Ores Subcategory, applies to mines that produce copper, lead, zinc, gold, silver or molybdenum ores, singly or in combination, from open-pit, or underground operations.

The Mission Complex does not discharge wastewater from its froth flotation process due to recycle and containment of the effluent. The reject from the froth flotation process is gravity-fed to large tailing impoundments where the tails settle out. The decanted water is recycled and pumped back to the concentrator for re-use. Additionally, process wastewater generated at the mill location is contained in impoundments designed to contain the 100 year 24 hour storm event. These locations include the South facility (currently inactive) and the North facility. The South facility drainage, consisting of a combination of tailings reclaim water, mine drainage and stormwater run-off from process areas not covered under the multi-sector general stormwater permit are contained in sedimentation basin RB9 and any overflow would be directed to a series of impoundments with containment designed to hold the 100 year 24 hour storm event. RB9 is unlined. There is no proposed discharge location from this area.

The North facility drainage, consisting of a combination of tailings reclaim water, process solution, mine drainage and stormwater run-off from process areas not covered under the multi-sector general stormwater permit are contained in sedimentation basins RB23 and Mission 1. The containment pond RB23 is not lined. These impoundments are designed to contain the 100 year 24 hour storm event and do not have a discharge point.

Any discharge of mine drainage subject to Part 440 Subpart J may qualify for the *Storm exemption for facilities permitted to discharge* as permitted in 40 CFR Part 440.131 (b). This storm exemption allows a source with an allowable discharge under 40 CFR Part 440 to have an overflow as a result of a storm event that does not meet the limitations established in 40 CFR Part 440 if that facility (1) is designed, constructed and maintained to contain the maximum volume of wastewater which would be generated by the 10-year, 24 hour storm event and (2) has taken all reasonable steps to maintain treatment and minimize overflow and (3) provides notification of such discharges.

The Mission Complex will control all areas of mine drainage and areas of potential mine drainage within containment designed to contain the 24 hour, 100-year storm event. Therefore, discharges from the Mission Complex qualify for the stormwater exemption. The requirements for containment, maintenance, and sampling of runoff are detailed in the Section C of the permit requiring that ASARCO establish Best Management Practices and submit a Stormwater Pollution Prevention Plan (SWPPP) for approval of the permitting authority.

Numeric Water Quality Standards: As outlined in A.A.C. R18-11-109 and Appendix A:

Per 40 CFR 122.44(d)(1)(ii), (iii) and (iv), limits have been included in the permit for parameters with ‘reasonable potential’, that is, those known to be or expected to be present in the effluent at a level that could potentially cause any applicable numeric water quality standard to be exceeded. The procedures used to determine reasonable potential are outlined in the *Technical Support Document for Water Quality-based Toxics Control (TSD)* (EPA/505/2-90-001).

Permit Limitations:

Guidance for the determination of reasonable potential to discharge toxic pollutants is included in both the *Technical Support Document for Water Quality Based Toxics Control (TSD)* - Office of Water Enforcement and Permits, U.S. EPA, dated March 1991 and the *U.S.EPA NPDES Permit Writers Manual* - Office of Water, U.S. EPA, dated December 1996.

EPA's technical support document contains guidance for determining the need for permit limits. In doing so, the regulatory authority must satisfy all the requirements of 40 CFR 122.44(d)(1)(ii). In determining whether the discharge causes, has the reasonable potential to cause or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants, the regulatory authority must consider a variety of factors. These factors include the following:

- Dilution in the receiving water,
- Type of industry,
- Existing data on toxic pollutants,
- History of compliance problems and toxic impacts,
- Type of receiving water and designated use.

A. Dilution in the receiving water

All discharges from outfalls in the Mission Complex are to ephemeral washes that are tributaries to the Santa Cruz River, itself an ephemeral waterbody in this area. Discharges from the mine site through the NPDES permitted outfalls will only occur during major storm events or during very wet seasons. Discharges during these conditions would be subject to an unknown amount of dilution in the receiving water. Reasonable potential to exceed surface water quality standards in the receiving water would exist if discharges occurred from the facility during dry weather when dilution is not available, but such dry weather discharges should not occur. However, determining reasonable potential to exceed standards during wet weather cannot be accomplished unless the in-stream flow rate is known and the dilution factor can be determined.

B. Type of Industry

The Mission Complex is a copper mine employing the froth flotation process to extract copper. Effluent limitations under Part 440 Subpart J have been developed for copper mines to regulate the following metals: copper, zinc, cadmium, lead and mercury. Copper mines are assigned the highest total toxicity number for discharges under the 1987 Standard Industrial Classification (SIC) code. Reasonable potential exists for discharges from an open-pit copper mine and associated stormwater runoff to exceed surface water quality standards by nature of the type of industry.

C. Determination of Reasonable Potential

Effluent monitoring data for the Mission Complex found hardness levels up to 1140 mg/l. Arizona water quality standards allow a maximum hardness of 400 mg/l to be used in developing water quality standards.

Water quality standards for ephemeral washes are meant to be protective of acute effects, since stormwater is only present for short periods of time. If effluent meets the daily maximum standard, it will be protective of the acute toxics affect on organisms. Therefore, only Daily Maximum Discharge Limits (MDLs) were determined for this permit and were set at the lowest applicable Arizona standard. (Note: The statistical TSD procedures for setting Maximum Daily Discharge Limits and Average Monthly Limits were not used for this permit. The TSD method would only apply when both monthly and daily limits are set.)

The reported maximum effluent value or the statistically estimated maximum effluent value is compared to the lowest applicable water quality criterion to determine the potential for an exceedence of that criterion and the need for an effluent limit. If one of the effluent values is greater than the water quality criterion, then an effluent limit is included in the draft permit.

The following table is a summary of sampling data provided in the permit application.

Parameter	Maximum Concentration	Statistical maximum concentration	Most Stringent water quality standards (total)	Reasonable Potential
Arsenic	86 ug/l	215	420 ug/l PBC	No
Cadmium	22 ug/l	50.6 ug/l	289.5 ug/l A&We	No
Copper	36,000 ug/l	> 36,000	85.9 ug/l A&We	Yes
Iron	105,000 ug/l	---	None	No
Lead	160 ug/l	368	15 ug/l PBC	Yes
Magnesium	3,500 ug/l	---	None	No
Manganese	3,400 ug/l	8,500	196,000 ug/l PBC	No
Mercury	< 0.5	0.575	5.0 ug/l A&We	No
Silver	< 5	6.25	37.4 ug/l A&We	No
Zinc	1820 ug/l	4186	3,599 ug/l A&We	Yes

Based on the above factors, EPA has determined that discharges from NPDES outfalls 001A, 002D, and 006L have the reasonable potential to exceed surface water quality standards for the following metals: copper, lead, and zinc.

Additionally, new Arizona water quality standards list water quality standards for E. coli for PBC. However, due to the nature of mining, the Mission Complex is not expected to contribute E. coli to its discharge that would cause or have the reasonable potential to cause a water quality exceedence of E. coli. Therefore, no limit has been set for E. coli.

D. Establishing Daily Maximum Permit Effluent Limitations Based on Hardness

The permit includes daily maximum permit effluent limitations for metals based on the aquatic and wildlife (ephemeral) acute toxicity criteria for copper and zinc.

The March 31, 2002, revisions to the Arizona Surface Water Quality Standards incorporated footnotes *k.1 and k.2* to Appendix A, Table 2 establishing a hardness 'cap' of 400 mg/l as calcium carbonate. The 400 mg/l 'cap' is applicable to all designated cold-water and warm-water fisheries, effluent dominated water bodies and ephemeral water bodies in Arizona. Footnotes *k.1 and k.2* require that hardness be based on the hardness of the effluent from a sample taken at the same time as the metal sample.

Hardness values have been measured up to 1140 mg/l. Use of the hardness 'cap' of 400 mg/l for the calculation of effluent limitations is therefore appropriate. The permit includes single value effluent limitations for copper and zinc that have been calculated using the equations in the footnotes to Appendix A, Table 2 of the Arizona Surface Water Quality Standards and an upper limit hardness value of 400 mg/l.

The lead limit is based on the newly adopted PBC standard rather than the A&We standard. The PBC standard is not hardness dependent.

E. Establishing Total Recoverable Metals Effluent Limitations from Water Quality Criteria

Arizona's NPDES Permit Writer's Process Guidance Workbook (Appendix L, Water Quality-based Effluent Limitations for Metals and Translator Studies) states that when developing total recoverable effluent limitations for metals, the permit writer should assume that the relationship between total recoverable and dissolved is 1:1 (i.e., translator = 1). Therefore, limitations for copper, lead and zinc have been incorporated into the permit as total recoverable limitations.

F. Final Limitations Summary

For pollutants with demonstrated reasonable potential to exceed surface water quality standards, this permit retains effluent limitations based on the most stringent of either technology-based limitations or state water quality standards. Permit effluent limitations based on the aquatic and wildlife, ephemeral beneficial use, were calculated using the foot-noted equations to Table 2 of the Arizona surface water quality standards and a single value hardness of 400 mg/l.

TABLE 4 - Basis For Final Permit Limitations

Parameter	Basis Daily Max.
pH	6.5 to 9 - A&We (1), PBC (2)
Copper (3)	AZ WQS - A&We (1), acute
Lead (3)	PBC (2)
Zinc (3)	AZ WQS - A&We (1), acute

Footnotes:

(1) AZ WQS - A&We = Arizona Surface Water Quality Standard - Aquatic and Wildlife, ephemeral

(2) AZ WQS PBC = Arizona Surface Water Quality Standard - Partial Body Contact

(3) These standards are written for total dissolved metals so a translator of one to one dissolved to total recoverable is assumed.

The final permit effluent limitations for these metals are listed as total recoverable metals.

VII. NARRATIVE WATER QUALITY STANDARDS

All applicable narrative limitations in A.A.C. R-11-108 are included in the permit.

VIII. MONITORING REQUIREMENTS

Additional monitoring at discharge outfalls

The Mission complex has been regulated by the Multi Sector General Permit for stormwater associated with mining activities. Tables G-1, G-2 and G-3 establish benchmark monitoring parameters for active and inactive stormwater runoff.

Based on data submitted in the permit application, this permit identifies several pollutants with the reasonable potential to cause or contribute to a water quality violation. This permit establishes effluent limitations for all discharge points for pH, copper, lead, and zinc.

Based on the data submitted in the permit application, the following additional parameters have exceeded the benchmark values: TSS, COD, total nitrogen, and iron, although EPA determined that there is no reasonable potential to violate water quality standards based on existing data. Therefore, this permit continues monitoring requirements for TSS, COD, total nitrogen, and iron but does not establish effluent limits for these parameters at this time.

Data has not been submitted for many of the parameters listed in Tables G-1, G-2 and G-3 of the MSGP. Based on available data, soil characteristics, and industry operations, EPA does not have knowledge that any other pollutant has the reasonable potential to cause or contribute to water quality violations. However, the permit requires further monitoring at all outfalls for those parameters listed in Tables G-1, G-2, and G-3 where EPA requires more data to determine reasonable potential. These are the same monitoring requirements that were required in the Findings of Violation and Order for Compliance and that were addressed in ASARCO's sampling plan submitted to EPA on August 2, 2002. The Order requires monitoring for these parameters through June 2006. Monitoring requirements include the following parameters:

Flow Rate
Total Suspended Solids
Chemical Oxygen Demand

Nitrogen as Nitrate plus Nitrite
Hardness
Turbidity
pH

Metals
Arsenic (Total recoverable and Dissolved)
Cadmium (Total recoverable and Dissolved)
Copper (Total recoverable and Dissolved)
Iron (Total recoverable)
Lead (Total recoverable)
Manganese (Total recoverable and Dissolved)
Mercury (Total recoverable and Dissolved)
Selenium (Total recoverable and Dissolved)
Silver (Total recoverable)
Zinc (Total recoverable and Dissolved)

IX. SPECIAL CONDITIONS

Development of Best Management Practices

The ASARCO Mission Complex filed its Notice of Intent (NOI) for coverage under the Multi-Sector Stormwater General Permit dated January 25, 2001. The MSGP requires the preparation and maintenance of a SWPPP as indicated in Part 4 and Part 6.G.6.1 of the MSGP.

As the result of an inspection report (dated May 3, 2002 prepared by John Hillenbrand, U.S. EPA), ASARCO was issued a Finding of Violation and Order for Compliance on June 20, 2002. As part of this order, EPA found that the Mission Complex SWPPP was inadequate and required that the ASARCO Mission Complex submit a revised SWPPP for approval by EPA. The Order for compliance included the following specific requirements for compliance with the SWPPP:

- “a. Conduct a drainage basin assessment to determine the outline of each basin, and its BMP(s) and designated outfall, or termination (if controlled by evapotranspiration or infiltration. Describe assumptions and methods used to determine the position of drainage divides. The method must include field verification. Present this data on the site map.
- b. Assess all facilities according to Table G-4 of the MSGP and categorize which facilities and discharges are eligible for coverage under the MSGP, and which facilities and discharges- include process fluids, mine drainage or other pollutants that may cause or contribute to violations of water quality standards- are ineligible for coverage under the MSGP. Process fluid facilities must be designated as such, and represented on the site map. Facilities with a potential to discharge process solution are subject to effluent limitation guidelines under 40 CFR 440. Containment or control must be demonstrated for all disturbed areas of the mine.
- c. Determine stormwater capacities for all MSGP and non-MSGP retention basins and conveyance structures around the site. Diversion and conveyance structures must be able to contain expected monsoon-type flows. Calculations must be provided.

- d. Describe structures that will prevent commingling of MSGP stormwater runoff and process fluids.
- e. Describe appropriate BMPs that you will use to control pollutants in stormwater discharges for areas where BMPs are not currently in place or for ones that need modification. Include performance standards. Design all MSGP appropriate facilities to be as close to the source of pollutants as possible.
- f. Revise the site map and show all features required in Part 6.G.6.1.2. and Part 4.2.2.3. of the MSGP. Include the mine feature (such as topographic lines representing tailings facility 4) to which the BMPs are applied. Include process water controls, and storage facilities, drainage area boundary lines and outfall or termination points.
- g. Describe a method to implement repairs to facility deficiencies found during regular maintenance inspections at all stormwater facilities. Implement monthly inspections and monitoring to insure that inspection maintenance related repairs are being done in accordance with the MSGP.”

To date, ASARCO has complied with the requirements of the order and the activities are ongoing at the Mission Complex. ASARCO submitted a revised SWPPP (dated August 2, 2002) to EPA for approval.

Permit SWPPP requirements

As noted in Section V, EPA determined in the Compliance Order that the Mission Complex is no longer eligible for coverage under the MSGP. Therefore, the draft permit identifies specific BMP requirements to be included in the SWPPP. Some of the requirements of the SWPPP (such as providing a description of the facility and a facility site map) will be completed within three months of the permit issuance, while other requirements of the SWPPP (such as maintenance and employee training) will require ongoing actions throughout the life of the permit.

The permit contains specific requirements for the SWPPP based on the required components of the MSGP and on ASARCO’s proposed SWPPP. Specific components to be included in the SWPPP are a site description, evaluation of potential pollution sources, methods for the control of mine drainage, construction of stormwater diversions, stormwater containment controls, stormwater source controls, corrective measures, site inspection and maintenance, employee training, and requirements for a site map.

Due to the potential for runoff generated from the mine site to cause or contribute to a violation of water quality standards, the SWPPP will include provisions for stormwater management.

All stormwater at the Mission Complex will be controlled through one of the following four methods:

1. Stormwater run-off will be diverted through berms, channels, dikes or other means to containment areas where no discharge of water occurs;
2. Stormwater run-off will be diverted through berms, channels, or dikes designed to convey the 100 year, 6 hour storm event to sediment ponds designed to hold the 100 year 24 hour storm event;
3. Stormwater run-on (generated from off-site) will be diverted around mining activities to prevent contamination; or

4. Potential stormwater contaminants will be controlled at the source by capping or removing all exposed mineralized materials and establishing a stable slope through grading and establishing vegetative cover. Stormwater runoff generated from areas controlled at the source will not be bermed or diverted to sedimentation ponds.

When the permittee completes the work required by the permit and the compliance order, the Mission Complex will provide 100-year, 24-hour containment for virtually all stormwater at the facility. At that point, most of the outfalls identified in this permit would not discharge except during storm events exceeding the 100-year, 24-hour event. In some cases, EPA and ADEQ have considered facilities providing physical containment (not including pumping) sufficient to contain the 100-year, 24-hour storm event as zero discharge facilities. However, the enhanced containment at Mission has not been completed at the time of drafting this permit, so all of the existing discharge points are identified as outfalls in the permit. At the time of permit renewal, the permittee may raise with the permitting authority the necessity of permitting outfalls that are capable of containing runoff associated with the 100-year, 24-hour storm event.

Regulatory Basis for Best Management Practices Program

The regulations at 40 CFR 122.44(k)(4) state that:

"In addition to the conditions established under § 122.43(a), each NPDES permit shall include conditions meeting the following requirements when applicable.

(k) Best management practices (BMPs) to control or abate the discharge of pollutants when:

(4) The practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA."

The development of BMP plans and individual best management practices for mining operations is supported by the nature of mining operations in general. Disturbance of the overburden due to surface mining causes significant changes in the physical and chemical nature of the mined area, and BMPs are designed to avoid or control discharges which may cause or contribute to violations of water quality standards.

Compliance Schedule

The requirements for schedules of compliance are stated in the Arizona surface water quality standards at A.A.C. R18-11-121. The requirements at A.A.C. R18-11-121 allow, under certain conditions, a compliance schedule to be incorporated into an existing NPDES permit to bring a facility into compliance with a new or revised water quality based effluent limitation (WQBEL). The requirements at A.A.C. R18-11-121 also allows for a compliance schedule to be established to bring a point source discharge of stormwater into compliance with a water quality standard.

Pursuant to Compliance Order No. CWA 402-9-02-31, the Permittee is developing a Work Plan for EPA approval. The Work Plan establishes a schedule to implement the construction and maintenance activities necessary to provide the stormwater containment and control mandated by this permit and the Order. Some of these activities require additional federal or state permits or approvals prior to construction. Therefore, it is appropriate to establish a compliance schedule for the Mission Complex.

EPA has therefore incorporated a compliance schedule that allows the Mission Complex to comply with the schedule established in the approved Work Plan, but that does not delay compliance by more than three years from the issuance of the permit.

X. ENDANGERED AND THREATENED SPECIES

1. Biological Evaluation

Biological surveys were conducted in 1995 and 1997 in connection with a proposed expansion of the Mission Complex. The 1995 and 1997 surveys indicated the presence of the Pima pineapple cactus (PPC) in and around the Mission Complex.

The SWPPP submitted to EPA as part of the Order for Compliance requires Asarco to construct additional stormwater containment facilities for the control of runoff. Due to the known presence of endangered species, Asarco conducted a biological survey to evaluate the potential effects of construction on endangered species.

A new biological survey was conducted in 2002 for the Pygmy Owl and the PPC. No pygmy owl was found on private lands (although a second survey is required on tribal lands). The construction of stormwater controls will affect the PPC. Construction of the stormwater controls will disturb approximately 165 acres, and a survey for PPC was done for 150' around the perimeter. The biological assessment assumed a 100' disturbance (although actual disturbance may be down to 50' in some areas). The survey found 70 PPC, of which 17 PPC will be directly affected by constructing the stormwater controls.

A formal endangered species consultation with the U.S. Fish and Wildlife service was conducted regarding the PPC. EPA, ASARCO Inc., and the Tohono O'Odham propose the following measures to minimize potential adverse effects to the PPC and its habitat:

1. Stormwater controls will be designed in such as way as to avoid individual PPC and areas of PPC concentration insofar as practicable while complying with the SWPPP.
2. The release of channelized run-on stormwater at SWPPP-designated outfalls will be directed into existing ephemeral drainages rather than as sheetwash dispersed over the general area. No PPC or suitable PPC on the Mission complex, or adjoining areas beyond the footprint of the Mission complex, will be adversely affected by discharge of stormwater or invasion of exotic plants as a result of excess water, erosion, or deposition of excessive amounts of silt or other materials.
3. Tohono O'Odham has jurisdiction over PPC on their lands and the disposition of the 13 PPC located on Tohono O'Odham lands will be determined by Tohono O'Odham, San Xavier natural resources staff, and Asarco before removal.
4. The proposed action will result in the permanent removal of 58.5 acres of PPC habitat. Asarco is going to expand its existing 877-acre conservation easement by 58.5 acres to compensate for the loss of PPC habitat. The location of this area will be within the Mission Complex, but not necessarily adjacent to the existing easement. The location will be coordinated with the FWS within one year of the date of this opinion.

5. The four PPC that are on private lands within the Mission complex will be transplanted to Asarco's PPC conservation easement.

The consultation is concluded and the following are recommendations from the Biological Opinion:

- 1) EPA would work with Asarco and FWS to expand the size of the PPC conservation area at the Mission complex.
- 2) EPA would work with Asarco and FWS to transplant affected PPC to the newly expanded segments of the conservation area.
- 3) EPA would participate on the stakeholder participation team developing the Pima pineapple cactus recovery plan and consider contributing to on-going survey efforts in Pima and Santa Cruz counties to determine the status of PPC on State lands.
- 4) EPA, in cooperation with FWS, would develop long-term conservation strategies for PPC and incorporate those strategies into the NPDES program.

XI. PERMIT REOPENER

The draft permit contains a reopener clause to allow for modification of the permit if reasonable potential is demonstrated during the life of the permit.

XII. STANDARD CONDITIONS

Conditions applicable to all NPDES permits are included in accordance with 40 CFR, Part 122.

XIII. ADMINISTRATIVE INFORMATION

Public Notice (A.A.C. R18-9-A907)

The public notice is the vehicle for informing all interested parties and members of the general public of the contents of a draft NPDES permit or other significant action with respect to an NPDES permit or application. The basic intent of this requirement is to ensure that all interested parties have an opportunity to comment on significant actions of the permitting agency with respect to a permit application or permit. This permit will be public noticed in a local newspaper after a pre-notice review by the applicant and other affected agencies.

Public Comment Period (A.A.C. R18-9-A908)

Rules require that permits be public noticed in a newspaper of general circulation within the area affected by the facility or activity and provide a minimum of 30 calendar days for interested parties to respond in writing to EPA. After the closing of the public comment period, EPA is required to respond to all significant comments at the time a final permit decision is reached or at the same time a final permit is actually issued.

Public Hearing (A.A.C R18-9-A908(B))

A public hearing may be requested in writing by any interested party. The request should state the nature of the issues proposed to be raised during the hearing. A public hearing will be held if the Director determines there is a significant amount of interest expressed during the 30-day public comment period, or if significant new issues arise that were not considered during the permitting process.

XIV. Additional Information

Additional information relating to this proposed permit may be obtained from the following locations:

U.S. Environmental Protection Agency, Region IX
CWA Standards & Permits Office Mail Code: WTR-5
75 Hawthorne Street
San Francisco, California 94105-3901
Telephone: (415) 972-3518
Attn: John Tinger

ADEQ
Water Quality Division - Surface Water Permits Unit Mail Code: 5415B-3
Attn: Ingrid Clark
1110 W. Washington Street
Phoenix, Arizona 85007
Telephone:(602)771-4678